


Autism Spectrum Disorder (ASD)

Prevalence

- About 1 in 59 children has been identified with autism spectrum disorder (ASD) according to estimates from CDC’s Autism and Developmental Disabilities Monitoring (ADDM) Network. [\[Read article\]](#)
- ASD is reported to occur in all racial, ethnic, and socioeconomic groups. [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/20634960\]](http://www.ncbi.nlm.nih.gov/pubmed/20634960) [\[Read article\]](#)
- ASD is about 4 times more common among boys than among girls. [\[Read article\]](#)
- Studies in Asia, Europe, and North America have identified individuals with ASD with an average prevalence of between 1% and 2%. [\[Data table\]](#)  [\[PDF – 232 KB\]](#)
- About 1 in 6 children in the United States had a developmental disability in 2006-2008, ranging from mild disabilities such as speech and language impairments to serious developmental disabilities, such as intellectual disabilities, cerebral palsy, and autism. [\[Read summary\]](#)

Identified Prevalence of Autism Spectrum Disorder

ADDM Network 2000-2014 Combining Data from All Sites

2000	1992	6	6.7 (4.5-9.9)	1 in 150
2002	1994	14	6.6 (3.3-10.6)	1 in 150
2004	1996	8	8.0 (4.6-9.8)	1 in 125
2006	1998	11	9.0 (4.2-12.1)	1 in 110
2008	2000	14	11.3 (4.8-21.2)	1 in 88
2010	2002	11	14.7 (5.7-21.9)	1 in 68
2012	2004	11	14.5 (8.2-24.6)	1 in 69
2014	2006	11	16.8 (13.1-29.3)	1 in 59

[Learn more about prevalence of ASD »](#)

[Learn more about the ADDM Network »](#)

[Learn more about MADDSP »](#)

Risk Factors and Characteristics

- Studies have shown that among identical twins, if one child has ASD, then the other will be affected about 36-95% of the time. In non-identical twins, if one child has ASD, then the other is affected about 0-31% of the time. ^[1-4]
- Parents who have a child with ASD have a 2%–18% chance of having a second child who is also affected. ^[5,6]
- ASD tends to occur more often in people who have certain genetic or chromosomal conditions. About 10% of children with autism are also identified as having [Down syndrome](#), [fragile X syndrome](#), [tuberous sclerosis](#) [\[http://www.nlm.nih.gov/medlineplus/ency/article/000787.htm\]](http://www.nlm.nih.gov/medlineplus/ency/article/000787.htm), or other genetic and chromosomal disorders. ^[7-10]
- Almost half (44%) of children identified with ASD has average to above average intellectual ability. [\[Read article\]](#)
- Children born to older parents are at a higher risk for having ASD. [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/18945690\]](http://www.ncbi.nlm.nih.gov/pubmed/18945690)
- A small percentage of children who are born prematurely or with low birth weight are at greater risk for having ASD. [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/18519485\]](http://www.ncbi.nlm.nih.gov/pubmed/18519485)
- ASD commonly co-occurs with other developmental, psychiatric, neurologic, chromosomal, and genetic diagnoses. The co-occurrence of one or more non-ASD developmental diagnoses is 83%. The co-occurrence of one or more psychiatric diagnoses is 10%. [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/20431403\]](http://www.ncbi.nlm.nih.gov/pubmed/20431403)

Diagnosis

- Research has shown that a diagnosis of autism at age 2 can be reliable, valid, and stable. [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/16754843\]](http://www.ncbi.nlm.nih.gov/pubmed/16754843) [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/17924183\]](http://www.ncbi.nlm.nih.gov/pubmed/17924183)
- Even though ASD can be diagnosed as early as age 2 years, most children are not diagnosed with ASD until after age 4 years. The median age of first diagnosis by subtype is as follows. [\[Read article\]](#)
 - Autistic disorder: 3 years, 10 months
 - ASD/pervasive developmental disorder (PDD): 4 years, 8 months
 - Asperger disorder: 5 years, 7 months
- Studies have shown that parents of children with ASD notice a developmental problem before their child's first birthday. Concerns about vision and hearing were more often reported in the first year, and differences in social, communication, and fine motor skills were evident from 6 months of age. [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/21410398\]](http://www.ncbi.nlm.nih.gov/pubmed/21410398) [\[Read summary\]](#) [\[http://www.ncbi.nlm.nih.gov/pubmed/22365461\]](http://www.ncbi.nlm.nih.gov/pubmed/22365461)

Economic Costs

- The total costs per year for children with ASD in the United States were estimated to be between \$11.5 billion – \$60.9 billion (2011 US dollars). This significant economic burden represents a variety of direct and in-direct costs, from medical care to special education to lost parental productivity. [Read article [↗](http://www.ncbi.nlm.nih.gov/pubmed/24515505) (<http://www.ncbi.nlm.nih.gov/pubmed/24515505>)] [Read article [↗](http://www.ncbi.nlm.nih.gov/pubmed/24911948) (<http://www.ncbi.nlm.nih.gov/pubmed/24911948>)]
- Children and adolescents with ASD had average medical expenditures that exceeded those without ASD by \$4,110–\$6,200 per year. On average, medical expenditures for children and adolescents with ASD were 4.1–6.2 times greater than for those without ASD. Differences in median expenditures ranged from \$2,240 to \$3,360 per year with median expenditures 8.4–9.5 times greater. [Read article [↗](http://www.ncbi.nlm.nih.gov/pubmed/17690969) (<http://www.ncbi.nlm.nih.gov/pubmed/17690969>)]
- In 2005, the average annual medical costs for Medicaid-enrolled children with ASD were \$10,709 per child, which was about six times higher than costs for children without ASD (\$1,812). [Read summary]
- In addition to medical costs, intensive behavioral interventions for children with ASD cost \$40,000 to \$60,000 per child per year.^[11]

Highlighted Articles

Key Findings

ADDM Network update

New CDC funding will expand knowledge about children with autism spectrum disorder.
(Published December 13, 2018)

Key Findings: Opioids Prescribed Just Before Pregnancy Associated With Autism

A study from the Waisman Center at the University of Wisconsin-Madison, in collaboration with the CDC, found that mothers who were prescribed opioids just before becoming pregnant were more likely to have a child with autism spectrum disorder (ASD) or a child with other developmental disabilities (DDs) and some autism symptoms.
(Published: August 21, 2018)

Key Findings: Autism is Associated with Amount of Time Between Births

A study from the Centers for Disease Control and Prevention (CDC) and research partners found that shorter and longer time periods between births are linked to having a child with autism spectrum disorder (ASD). The findings from this study can help healthcare providers convey information to their patients about the ideal timing between pregnancies.
(Published: December 6, 2017)

Key Findings: Prevalence of Self-injurious Behaviors Among Children with Autism Spectrum Disorder

The Journal of Autism and Developmental Disorders has published a new study showing that nearly 28% of 8-year-old children with autism spectrum disorder (ASD) behave in ways that can lead to self-injury.
(Published: October 21, 2016)

Key Findings: Prevalence and Characteristics of Autism Spectrum Disorder Among 4-Year-Old Children

Data from a CDC pilot project, published in the Journal of Developmental and Behavioral Pediatrics, suggest that progress has been made in identifying children with autism spectrum disorder (ASD) at younger ages.
(Published December 9, 2015)

Key Findings: Autism symptoms among children enrolled in the Study to Explore Early Development

A new analysis looking at autism spectrum disorder (ASD) symptoms among young children enrolled in CDC's Study to Explore Early Development (SEED).
(Published June 6, 2015)

Key Findings: The association between assisted reproductive technology and autism spectrum disorder

New studies on the relationship between ART and autism.

(Published March 20, 2015)

ADDM Network update

New CDC funding will expand knowledge about children with autism spectrum disorder.

(Published January 2, 2015)

Classifying autism in research studies

Using standardized diagnostic instruments to classify children with autism to help find causes of the disorder.

(Published October 27, 2014)

Key Findings

Unhealthy weight among adolescents with autism.

(Published March 17, 2014)

Risk Factors for Autism

Read key findings from new CDC research.

(Published: March 17, 2014)

Key Findings

Potential impact of DSM-5 criteria on autism spectrum disorder prevalence estimates.

Feature Articles

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Related Pages

[Child Development](#)

[Developmental Disabilities](#)

[“Learn the Signs. Act Early.” Campaign](#)

[CDC’s National Center on Birth Defects and Developmental Disabilities](#)

Glossary

Prevalence is the number of people in a population that have a condition relative to all of the people in the population. Prevalence is typically shown as a percent (e.g. 1%) or a proportion (e.g. 1 in 100).